

1 What is claimed is:

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3 1. A printer drive mechanism, comprising:

4 a drive motor;

5 a drive roller for feeding a media sheet towards and through an image
6 printing area;

7 a drive transmission for coupling to the drive roller to the drive motor for
8 turning the drive roller at different speeds; and

9 a speed selector disposed in the drive transmission for selecting the
10 range of turning speeds of the drive roller at a first speed for feeding the media
11 sheet to the printing area and at a second speed for feeding the media sheet
12 with precision for image printing while in the printing area.

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14 2. The drive mechanism of claim 1, wherein the speed selector comprises
15 a clutch gear coupled to the motor wherein the clutch gear is movable between
16 a first and a second position, wherein the first and second positions
17 respectively correspond to the first and second speed.

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19 3. The drive mechanism of claim 1, wherein the first speed is faster than
20 the second speed.

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22 4. The drive mechanism of claim 1, wherein the first speed is characterized
23 by rapid media sheet feeding with less precision and the second speed is
24 characterized by precision media sheet feeding at a speed slower than the first
25 speed.

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27 5. The drive mechanism of claim 1, wherein the drive transmission
28 comprises a low-reduction and a high-reduction mechanism, and the speed
29 selector selectively engages the drive roller with the drive motor through one of
30 the low-reduction and high-reduction transmission mechanisms such that the
31 drive roller feeds the media sheet at the first or second speed respectively.

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2 6. The drive mechanism of claim 5, wherein the high-reduction
3 transmission mechanism is a harmonic drive for providing a precise line feed
4 characteristic to the drive roller.
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6 7. The drive mechanism of claim 6, further comprising an encoder disk
7 coupled to the drive motor for detecting rotational positions of the drive roller
8 through rotational positions of the drive motor.
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10 8. A printer drive mechanism, comprising:

11 a drive motor;

12 a drive roller for feeding a media sheet towards and through an image
13 printing area;

14 a low-reduction gear train coupled to the drive roller and selectively
15 engagable with the drive motor for selectively coupling the drive roller to the
16 drive motor and for turning the drive roller at a first speed;

17 a harmonic drive coupled to the drive roller and selectively engagable
18 with the drive motor for selectively coupling the drive roller to the motor and for
19 turning the drive roller at a second speed; and

20 a clutch gear movable between a first and a second position for
21 selectively engaging one of the low-reduction gear train and the harmonic drive
22 with the drive motor.
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24 9. The drive mechanism of claim 8, wherein the first speed is faster than
25 the second speed.
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27 10. A process for feeding a media sheet in a printer, comprising the steps of:
28 feeding the media sheet at a first speed towards a print zone in the
29 printer before the media sheet reaches the print zone; and

30 feeding the media sheet at a second speed through the print zone where
31 images are printed onto the media sheet.

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2 11. The process of claim 10, wherein the first speed is higher than the
3 second speed.

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5 12. The process of claim 10, further comprising the step of feeding the
6 media sheet out of the print zone to an output area at a third speed.

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8 13. The process of claim 12, wherein the first and second speed is equal.

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10 14. A printer having a drive mechanism for handling a media sheet, the drive
11 mechanism comprising:

12 a drive motor;

13 a drive roller for feeding a media sheet towards and through an image
14 printing area;

15 a low-reduction gear train coupled to the drive roller and selectively
16 engagable with the drive motor for selectively coupling the drive roller to the
17 drive motor and for turning the drive roller at a first speed;

18 a harmonic drive coupled to the drive roller and selectively engagable
19 with the drive motor for selectively coupling the drive roller to the motor and for
20 turning the drive roller at a second speed; and

21 a clutch gear movable between a first and a second position for
22 selectively engaging one of the low-reduction gear train and the harmonic drive
23 with the drive motor.